APPENDIX I

Setting up the Lexmark Optra M410 Laser Printer to print AFMIS Reports

1. These instructions are written for the AFMIS system administrator, who has basic knowledge of SCO Unixware 7.1 & Windows NT 4.0 Workstation/Windows 2000 Professional operating systems. AFMIS users will be connecting to server as they normally do (via modem, LAN, etc) and logging into the AFMIS UNIX Server (currently the Compaq Proliant 1600) using a terminal emulator from their Windows NT 4.0 workstation/ Windows 2000 Professional pcs.

2. **How to setup the Lexmark Optra M410 Laser Printer directly connected to the parallel port on the AFMIS UNIX Server:**

   (a) Ensure printer is connected to parallel port on the Compaq Proliant 1600 server, powered on, & paper has been added. Ensure the 'ready' message is displayed on the LED control panel above the menu, select, and return buttons on the Lexmark printer. Each button has a number associated with it, for example, button '1' is the **left arrow** under the menu option, button '2' is the **right arrow** under the menu option, button '3' is the **select** option, button '4' is the **return** option, button '5' is the **go** option, & button '6' is the **stop** option. For the remainder of this document you will be instructed to press button(s) 1 to 6 when necessary.

   - Press button '2' six times to get to the **Setup Menu**.
   - Press button '3' twice to get to **printer language=PS Emulation**.
   - Press button '2' once to change to **printer language=PCL Emulation**.
   - Press button '3' once to accept change.
   - Continuing from the setup menu (printer language), press button '4' once to return to the **Setup Menu**.
   - Press button '2' once to get to the **PCL Emul Menu**.
   - Press button '3' once to get to **Font Source**.
   - Press button '2' twice. Press button '3' once to get to **Pitch**.
   - Press button '3 to see pitch as **10.00**.
   - Press button '2' until you change the pitch to **12.00**, then
   - Press button '3' once to accept change.
   - Press button '2' three times to get to **Lines per Page**.
   - Press button '3' once to see lines per page as **60**.
   - Press button '2' until you change the lines per page to **66**, then
   - Press button '3' once to accept change.
   - Press button '4' twice to return printer to '**Ready**' state.

   You have now successfully changed the Lexmark printer to PCL Emulation, 12 characters per inch, and 66 lines per page. The next task is to add a local printer to the Compaq Proliant 1600 Server using the Sco Admin tool.

(c) Login as root on the AFMIS Compaq Proliant 1600 server using the graphical terminal (not the dumb tube). Either through command line or clicking on tool bar (the up arrow above the tree icon) and selecting **SCO Admin**. Double click on **Printer Setup Manager** to open up the Printer Setup window. Click on **Printer** from the menu on the top of the window and then click on **Add Local Printer** to open the Add a Serial or Parallel Printer Window. In the name field enter **Lexserver**. Tab to the Make/Model field and scroll down the list till you find **HPLaserJetIIIsi (PCL)**. Ensure that printer driver is highlighted, then make sure connection type is **Parallel** and connection port is **LPT1**. Then click on **OK** to add the printer. Click on **Host** from the menu bar and then click **Exit** to leave the Printer Setup window. Click on **Host** from the menu bar and then click on **Exit** to leave the SCO Admin tool. Logout from system. You have now successfully added a printer called Lexserver to the AFMIS Compaq Proliant 1600 server.

(d) Lastly, For each user that will print to this directly connected printer, ensure that the following lines are included in their **.profile** in their home directory on the Compaq Proliant 1600 Server:

> **LPDEST=printername**
> **DBPRINT="lp –s –dprintername"**

3. **How to setup the Lexmark Optra M410 as a network printer:**

(a) You will be responsible for obtaining a VALID IP address, subnet mask, & IP gateway address for EACH Lexmark printer that will be setup as a network printer on your local area network from your local DOIM. You may have to work with your local DOIM to resolve any 'firewall' issues. Install or have the LAN card installed into the Lexmark printer.

(b) Connect a 10 Base T ethernet cable (RJ-45 connection) to the internet card located in the rear of the Lexmark Optra M410 printer. Ensure printer is powered on and paper has been added. Ensure the 'ready' message is displayed on the LED control panel above the menu, select, and return buttons on the Lexmark printer. Each button has a number associated with it, for example, button '1' is the **left arrow** under the menu option, button '2' is the **right arrow** under the menu option, button '3' is the **select** option, button '4' is the **return** option, button '5' is the **go** option, & button '6' is the **stop** option. For the remainder of this document you will be instructed to press button(s) 1 to 6 when necessary.

- Press button '2' six times to get to the **Setup Menu**.
- Press button '3' twice to get to **printer language=PS Emulation**.
- Press button '2' once to change to **printer language=PCL Emulation**.

- Press button '3' once to accept change. Continuing from the setup menu (printer language),
- Press button '4' once to return to the **Setup Menu**.
- Press button '2' once to get to the **PCL Emul Menu**.
- Press button '3' once to get to **Font Source**.
- Press button '2' twice. Press button '3' once to get to **Pitch**.
- Press button '3 to see pitch as **10.00**.
- Press button '2' until you change the pitch to **12.00**, then
- Press button '3' once to accept change.
- Press button '2' three times to get to **Lines per Page**.
- Press button '3' once to see lines per page as **60**.
- Press button '2' until you change the lines per page to **66**, then
- Press button '3' once to accept change.
- Press button '4' twice to return printer to '**Ready**' state.

You have now successfully changed the Lexmark printer to PCL Emulation, 12 characters per inch, and 66 lines per page. The next task is to set the network parameters in the Lexmark Optra M410 laser printer using the same control panel.

- Push button '2' ten times to get to the **Network Menu**.
- Press button '3' once to get to **Network Option 1**.
- Press button '3' once to get to **PCL Smartswitch**.
- Press button '2' four times to get to **Network 1 Setup**.
- Press button '3 to get to **Print**.
- Press button '2' four times to get to **TCP/IP**.
- Press button '3' once to get to **Activate**.
- Press button '2' four times to get to **Set IP Address**.
- Press button '3' to enter the IP address.
- Use buttons '1' & '2' to increase or decrease the numbers until it matches the valid IP address provided to you (in this example we used 155.154.112.203).
- Press button '3' once to accept each 3 digit octet. (pressing button '3' a total of four times to accept the IP address).
- Press button '2 once to get to **Set IP Netmask**.
- Press button '3' to enter the Netmask. Doing as you did before, use buttons '1' & '2' to increase or decrease the numbers until it matches the valid netmask provided to you (we used 255.255.255.0).
- Press button '3' once to accept each 3 digit octet (pressing a total of four times to accept the Netmask).
- Press button '2' once to get to **Set IP Gateway**.
- Press button '3' to enter the IP Gateway address.
- Use buttons '1' & '2' to increase or decrease the numbers until it matches the valid IP Gateway address provided to you (in this example we used 155.154.112.254).

- Press button '3' once to accept each 3 digit octet (pressing a total of four times to accept the IP Gateway address.
- Press button '4' five times to get to '**Ready**' state.

The next task is to add the printer to the Compaq Proliant 1600 Server using the Lexprt Utility below.
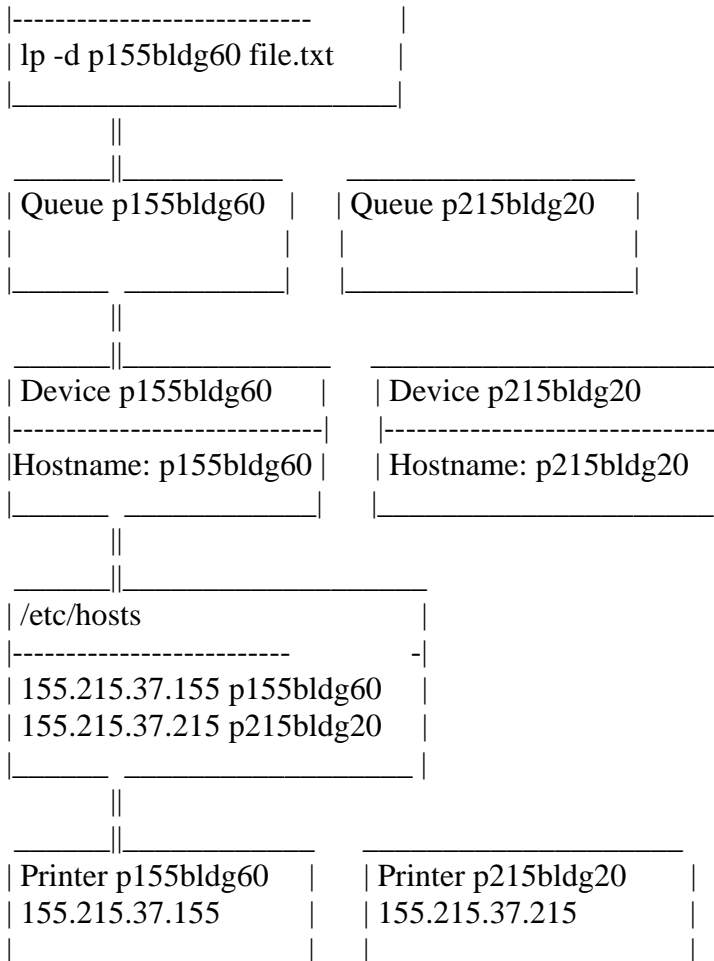
4. **INSTALLING LEXMARK PRINT DRIVERS**

   1)   At a root prompt type:
pkgadd –d /prtdrivers/drivers-unixware7.pkg

   2)   Installation will begin, you will first be asked to select the packages to process: (hit **enter** to select default ALL)

   3)   Enter path to installation directory: (hit **enter** to select default /opt/lexmark)

   4)   How should the fonts be installed: **B**

   5)   Enter directory in which the fonts will be added: (hit **enter** to select default)

   6)   Install path: (hit **enter** to select default /opt/lexmark)

   7)   Administrative group: (hit **enter** to select default)

   8)   End of installation. **Note:** this is a one time process.

DIAGRAM OF HOW PRINT DRIVER WORKS

Notice that queue name, the hostname, the device name and the printer name are all the same.

| User's Terminal |

```
|---------------------------     |
| lp -d p155bldg60 file.txt      |
|_____|
          ||
      _____||_____        _____
| Queue p155bldg60  |    | Queue p215bldg20    |
|                   |    |                     |
|_____  _____ _|    |_____|
        ||
      __||_____        _____
| Device p155bldg60      |    | Device p215bldg20    |
|--------------------------|    |------------------------------|
|Hostname: p155bldg60 |    | Hostname: p215bldg20   |
|_____  _____|    |_____|
        ||
     ___||_____
| /etc/hosts                 |
|------------------------         -|
| 155.215.37.155 p155bldg60    |
| 155.215.37.215 p215bldg20    |
|_____  _____ |
        ||
     ___||_____        _____
| Printer p155bldg60    |    | Printer p215bldg20    |
| 155.215.37.155        |    | 155.215.37.215        |
|_____ _|    |_____|
```

SETTING UP LEXMARK PRINTERS

1)   At a root prompt in the GUI type: type **lexprt** press enter.

2)   Note: There is a bug in lexprt where the ACCEPT button will not work
        until you click on one of the menu items. Do not actually select anything
        in the menu, simply click a menu then click anywhere else. Then the

ACCEPT button will work.

3) Click on: **Create a virtual device**

4) **Enter the device name**. For example if the printer's name is p155bldg60, the device name should be p155bldg60. Click **ACCEPT**.

5) Click on: **Network Connection**

6) **Enter the host name for the printer**. This host name **MUST** be in /etc/hosts or on a DNS server. The host name should be the same as the physical printer's name. Click **ACCEPT**.

7) In "Network Device Options" click **ACCEPT** to accept the defaults.

8) Click on: **Create a queue**

9) **Enter a queue name**. This is the name that will be used when setting a print destination for commands like "lp -d QueueName". For clarity, use the same name as the hostname. Click **ACCEPT**.

10) Click on the **device you just created**.

11) Choose a type of printer. Select the "**Lexmark Optra M41x (410, 412) Printers**" driver for the Optra M410, T520 or T630 printers. This driver will work for this suite of Lexmark printers.

12) In "Printer Language" select: **AUTO**

13) Click on the |**...**| box next to "PCL emulation options".

   a) change the **Pitch to 12**
   b) change **Lines per page to 66**
   c) make sure the option **"66 lines per page" is ON**
   d) change the **Page Width to 120**
   e) change **"Collation" to ON**
   f) click on the |**...**| box next to "Banner page options"
      1) change **"Print banner" to NO**
      2) change **"Run banner program" to NO**
      3) change **"Pitch" to 12**
      4) change **"Lines per page" to 66**
      5) make sure **"66 lines per page" is ON**

14) Click **ACCEPT**, **ACCEPT**

15)   Click on the |**...**| box next to "PostScript emulation options".

       a) change **"Collation" to ON**
       b) click on the |**...**| box next to "Banner page options"
            1) change **"Print banner" to NO**
            2) change **"Run banner program" to NO**

16)   Click **ACCEPT**, **ACCEPT**, **ACCEPT**

17)   You should now be back at the Main Menu. Return to step 3 if there are more printers to be configured.

18)   **Install the terminfo file** (One time process). This involves copying the terminfo file to the /usr/share/lib/terminfo/o directory.

         cd /usr/share/lib/terminfo/o
         cp /prtdrivers/optraM410 .
         chown bin optraM410
         chgrp bin optraM410
         chmod 644 optraM410

       (/prtdrivers/optraM410 is the full path to the terminfo file)

19)   **Install the custom interface file**. This involves copying the custom file on top of the file with the name of the queue name in /etc/lp/interfaces. Do this for each Lexmark printer installed on the system. Be careful not to do this to any non-Lexmark printers.

       cp /prtdrivers/Lexprinter /etc/lp/interfaces/PRINTERNAME

      (/prtdrivers/Lexprinter points to custom interface file) **PRINTERNAME** is the queue name of the Lexmark printer)

20)   **Change each printer's configuration file to use optraM410. Change directory to /etc/lp/printers/PRINTERNAME and edit the file name "configuration". In the file change the line that reads "Printer type: unknown" to "Printer type: optraM410" without quotes**. Do this for **each** Lexmark printer installed on the system and be careful not to change any non-Lexmark printers.

      cd /etc/lp/printers/PRINTERNAME
      vi configuration

      (**PRINTERNAME** is the queue name of the Lexmark printer)

21)   **Restart the print server**. At a root prompt in the GUI type: **scoadmin**

Printer Setup Manager

22)   In the window that appears:

   a) In the menubar click "**Server**" then click "**Halt**".
   b) Click "**OK**" on the question box that appears.
   c) In the menubar click "**Server**" then click "**Start**".
   d) Click "OK" on the question box that appears.
   e) In the menubar click "**Host**" then click "**Exit**".

4. Now we need to make a few more changes to the Lexmark Optra M410 printer
    using telnet. At the command line type **telnet xxx.xxx.xxx.xxx 9000**
    (**Note:** xxx.xxx.xxx.xxx is your DOIM furnished Lexmark printer ip address)
    and then press '**enter**'.
    You will see nine options listed under the 'Main Menu'.

- Type **5** at the selection prompt and press **enter**.
- You will be at the LPD configuration menu.
- Type **1** and press **enter**.
- Type **X** and press **enter** to exit current menu and return to the main menu.
- Type **1** at the selection prompt and press **enter**.
- You will be at the IP address configuration menu.
- Type **9** at the selection prompt and press **enter**.
- Enter the **printer's name** at the "**Enter new value for Hostname**" prompt
- and then press **enter**.
- Type **X** and press **enter** to exit current menu and return to the main menu.
- Type **8** and press **enter** to save changes.
- Type **Y** and press **enter** to accept.
- Type **X** and press **enter** to exit this telnet session.

You have now successfully setup the Lexmark Optra M410 as a network printer on
the AFMIS Compaq Proliant 1600 server.

5. Lastly, for each user that will print to this network printer, ensure that the
following lines are included in their .profile in their home directory on the Compaq
Proliant 1600 Server:

   LPDEST=printername
   DBPRINT="lp –s –dprintername"